NORTHERN TIER TRANSMISSION GROUP

Description of Meeting:	**NTTG Joint Planning and Cost Allocation Committee Meeting Notes**
Meeting Date:	**May 11, 2016**
Meeting Notes Prepared By:	**Amy Wachsnicht**
Approved for Posting:	**June 8, 2016**

1. Agenda:

a. Roll Call, Establish Quorum and Agenda Review
b. 2016-2017 Draft Study Plan Schedule and Milestones
c. 2016-2017 Draft Study Plan Review
   i. Study Plan overview
   ii. Quarter 1 load and resource data
   iii. Regional Transmission Projects, Transmission Service Obligation's, ATC, and ITPs
   iv. Analysis tools and Regional Transmission Plan evaluation process
   v. Public Policy Requirements
   vi. Base Case assumptions and project re-evaluation
   vii. System conditions to study, Change Cases and reliability criteria
   viii. Analysis metrics and evaluation process
   ix. Impacts on neighboring regions and ITP coordination
   x. Robustness testing
   xi. Cost allocation overview
   xii. Cost allocation scenarios
   xiii. Public Policy Consideration study request and Study Plan
d. Wrap Up, Next Steps and Adjourn

2. Discussions & Decisions:

Discussion: 2016-2017 Draft Study Plan Schedule and Milestones

- Sharon Helms welcome everyone to the meeting and acknowledge changes within NTTG.
  - The Cost Allocation Committee held elections and as a result, Amy Light with Portland General was elected as the Cost Allocation Committee Chair and Courtney Waits was elected as the Vice Chair.
  - Chelsea Loomis with NorthWestern is acting as the Planning Committee Chair for the interim which Craig Quist of PacifiCorp is out on short term disability.
  - Ron Schellberg with Comprehensive Power Solutions has replaced Gil Coulam as the NTTG Technical Workgroup (TWG) technical advisor.
- The objective of this meeting is to review in detail the NTTG study plan so that stakeholders understand what is being proposed prior to posting the study plan for comments.
- NTTG is currently in Quarter 2 of the biennial planning cycle. The TWG had several conference calls to draft the study plan. They started with the study plan from the previous cycle and incorporated lessons learned and updated data from the Quarter 1 submissions.
- Later in the week following this meeting, a notice will be distributed to stakeholders informing them of the open window for comments on the draft study plan. Those comments will be

tracked and responded to using NTTG's comment form. On June 8th there is a proposal to have a Joint Planning and Cost Allocation Committee meeting to review the comments submitted and NTTG's responses.

- NTTG's next stakeholder meeting is scheduled for June 28th in Boise, ID to walk through the revised draft study plan as a result of stakeholder comments. NTTG will have its final responses documented and another Joint NTTG Planning and Cost Allocation meeting in July to vote to recommend sending the draft study plan to the NTTG Steering Committee for their approval at the July 15th meeting.

Discussion: 2016-2017 Draft Study Plan Review

- Chelsea Loomis informed the participants that the study plan being presented included highlights which were meant to be talking points and not an exclusion of any information.
- Study Plan overview
    - The Regional Transmission Plan (RTP) is a 10-year study and will follow the study plan to develop the 10-year plan for the 2016-2017 planning cycle. The study plan will include a roll up of the funders local transmission projects as well as determine if the properly submitted Interregional Transmission Projects are more efficient or cost effective solution to meet NTTG's regional needs.
    - The study plan relies on load, resources, point-to-point transmission requests and other data submitted in Quarter 1. NTTG will be asking for any updates in Quarter 5.
    - The methodology, criteria, Public Policy Requirements and considerations, assumptions, databases, analysis tools and project identification will be established in the study plan and available for stakeholder comment.
    - If there are any differences in what is written in the study plan, versus the Attachment K, the Attachment K will take precedence.
    - Chelsea Loomis indicated there had been interest in either more participation or a larger group of the Technical Workgroup (TWG) and that the study plan included the requirements for participation in the TWG. The TWG undertakes the development and preforms the technical evaluation of the RTP. The members include NTTG Planning Committee or their technical representatives who have signed an NDA and have the ability to run production cost and power flow studies as well as committed to accepting and completing the technical planning assignments in a corporative and timely manner.

    - **Question:** Travis Allen – This participation would be typically done in accordance with the methodologies that are outlined in things like Attachment D?
        - **Answer:** Chelsea Loomis – For Attachment K yes. The methodologies and criteria follow the guidelines set out by NERC, WECC or any of the differences in the local transmission provider's plans.
    - **Question:** Travis Allen – There would be an expectation the local transmission provider would have the appropriate steps to be engaged in the analysis to do the work that needs to be done?
        - **Answer:** Chelsea Loomis – We are trying to say, that we welcome people to participate in the committee who have the technical expertise and can commit to the entirety of the cycle. We do not want someone that only works on one study or one aspect and then steps away.

- **Comment:** Cameron Yourkowski – We are not interested in joining the TWG per say, but we are interested in pursuing other options to have a technical consultant to be able participate in the Public Policy Consideration (PPC) study request that is planned for the study cycle, who has more technical expertise than Fred Heutte and myself .
  - **Answer:** Chelsea Loomis – Thank you for your comment. Talking about the group formation and the participation component, we are trying to avoid someone to oversee a study or direct us to do a study and then leave. We want someone to fully commit to the full biennial cycle. Given it is a PPC and may not change the RTP, there might be a possibility for that consultant to participate but it has not been discussed by the Planning Committee.

- The study objective is to produce a RTP that meets the needs of the NTTG footprint on a regional and interregional basis and is more efficient or cost effective than the Initial Regional Plan (IRTP).
  - The IRTP is a roll up of the previous RTP including any changes to the full funder's local transmission plans and the regional transmission projects that have been properly submitted. Once the IRTP is developed the TWG will do reliability assessments using the IRTP as the base line for the assessment.
- The General Schedule and Deliverables section walks through the 8 Quarters of NTTG's biennial process.

- Quarter 1 load and resource data
  - Data assumptions include the loads, resources and transmission service that are submitted in Quarter 1.
    - Chelsea Loomis walked through the table that compared the load data submitted in Quarter 1 to the loads forecasted in the previous cycle.

  - **Question:** Bela Vastag - Why did PacifiCorp go down 600MW?
    - **Answer:** Jamie Austin – A couple of factors. One, the official load forecasting group changed their methodology for forecasting loads. I am involved with TEPPC and building the loads for the common case; we're on a general load decreasing trend west wide.

  - **Question:** Dave Smith – I see a note that Power Company of Wyoming submitted 3,000 MW before and then an interregional project submitted that as well. I didn't know how to properly submit the Power Company of Wyoming resource, and I don't know if you want to treat it as a reduction in the NTTG Plan but we didn't want to double count them. It shouldn't be double counted but it should be counted in the NTTG Plan
    - **Answer:** Chelsea Loomis – We will be happy to look at that and make sure we are not double counting those resources. We will follow up with Dave Smith to make sure it is counted correctly in our studies.

- Regional Transmission Projects, Transmission Service Obligation's, ATC, and ITPs
  - NTTG received the submission of transmission projects, these can be from the prior RTP, Full Funder local transmission plans, sponsored or unsponsored projects or

merchant transmission developer. The IRTP will be derived from the projects included in the prior RTP and the projects included in the Full Funder's local transmission plan.

- Chelsea Loomis walked through the table showing a list of projects that were submitted in Quarter 1. Those projects that were in the prior RTP had been highlighted and will not be double counted.
    - Fred Heutte asked for clarification on the regionally significant projects and indicated the study plan did not include a description of those and how they are defined.
        - Chelsea Loomis indicated that there are some projects that do not impact the regional needs of the NTTG system. The TWG worked with utilities of the submitted project to see if it was a local project to serve local needs or if it was a regional project to help serve the regional needs of the footprint. It will be in the studies, but it will not be taken in and out to assess the reliably needs of the regional footprint. She also made the suggestion that language should be added to the study plan making that clarification.

- **Question:** Dave Smith – On the projects listed as LTP and pRTP, the LTP are Full Funders transmission plans. Does that mean the assumption is that the projects are fully funded by the members represented here? I know that PAC announced plans to integrate with CAISO and segments on the Gateway project might want to be funded by CAISO. Is that going to be assessed in this plan or is that something you are going to assume are 100% funded by PAC?
    - **Answer:** Chelsea Loomis - They are full funder local transmission projects. None of the projects asked for cost allocation. From a study perspective, they have been submitted, and we are studying them as real projects and moving forward regardless of who funds them.
- **Question:** Dave Smith – Regardless of who funds them or they will be funded by those who submitted them?
    - **Answer:** Chelsea Loomis – There are 2 components, the TWG component who looks at the reliability of the system and the other is the cost allocation component where they allocate the costs to the Beneficiaries. I am speaking on behalf of the technical work. If PacifiCorp joins the CAISO in the next 5 years, that doesn't impact the fact they submitted it for this cycle and are active member of NTTG. When it gets into the cost allocation portion there might be more said about that.
- **Comment:** Dave Smith – I was on a WestConnect call there was discussion about if this set of projects should be assumed in or not. I think WestConnect will follow up with NTTG on that.
    - **Answer:** Jamie Austin – As far as the NTTG studies concern, our intention is to be treated as fully funded by the owner. What you are referring to is the ISO joint venture is a totally separate process.
- **Comment:** John Leland – All the segments that are PacifiCorp will be evaluated within the context of the region and in the context of if they are enabling some of the interregional projects to be a more efficient or cost effective solution for NTTG and we will be coordinating with WestConnect.

- Additional tables included in the study plan include:
  - Transmission service obligations identified by Idaho Power and PacifiCorp East.
  - A summary of the Available Transfer Capability and designated transmission paths. The TWG is waiting for updated information from the Transmission Use Committee and the values are the still the same as in the 2014-2015 report.
  - High level summary of the three Interregional Transmission Projects received in Quarter 1. Which include:
    - Cross-Tie Project submitted by TransCanyon
    - SWIP-North submitted by Great Basin
    - TransWest Express Project submitted by TransWest Express (TWE)
  - Chelsea Loomis indicated the Relevant Planning Regions (RPR) met last week. ColumbiaGrid also attended for information only due to the fact this is a new process and were interested.

- Analysis tools and Regional Transmission Plan evaluation process
  - NTTG uses PowerWorld power flow software to run the analysis and will evaluate the reliability under N-0 and N-1 conditions and certain credible N-2 contingencies.
  - This cycle NTTG is anticipating to have a dynamic ready base case from the round trip process.
  - NTTG also uses the GridView production cost modeling software to define the power flow base case assumptions for stressed hours during the year.
  - NTTG will evaluate the IRTP, any regional or interregional project submittals and any Alternative Projects through the creation of change cases.
  - Chelsea Loomis walked through the steps of the study process which include:
    - Costs and other physical information with respect to the projects a 10-year study period and other data used in the entire interconnection wide power flow and PCM.
    - PCM bases cases of the IRTP will be developed using GridView and determine the hours when the load and resource conditions likely to stress the system in the NTTG footprint.
    - Using the round trip process, the TWG will convert the selected hours back to a power flow reading case.
    - The IRTP will be evaluated using power flow analysis techniques to determine if the topology meets the system reliability performance requirements and transmission needs included needs associated with Public Policy Requirements (PPR).
      - If the case fails to meet the transmission requirements, then one or more sponsored or unsponsored Alternative Projects or an unsponsored Alternative Project identified by the TWG will be added to correct the deficiencies
    - Change cases will be developed by the addition of the Alternative Project or the transmission projects compared to the IRTP to see if the change case is a more efficient or cost effective solution.

- Change cases will be evaluated to make sure the system performance meets the requirements and transmission needs associated with PPR and other transmission obligations. If it does not, it will either be set aside or modified by the TWG with an addition of an Alternative Project.
- The power flow analysis will monitor the impacts of projects in the IRTP and on neighboring planning regions. If impacts are found, NTTG will coordinate with the neighboring planning regions to mitigate a solution.

- **Question:** Dave Smith – A lot of what you describe sounds like it applies to the WECC path rating process. How do you coordinate that with the WECC path rating process? Because there you cannot also burden the system. Is this in plan ahead of that process, in conjunction with the process? I appreciate some projects that don't go through that process and I am referring to the projects that go through that process.
  - **Answer:** Chelsea Loomis – This biennial cycle is not designed to be specifically a part of the path rating process. The obligation for a path ratting change is from the person who changed it. If they put a new generator on a path or added a new transmission line the party that owns that line is responsible for starting the path rating process. Certainly the studies done here can help support the path rating process but are not designed to be a part of the path rating process timeline. We have a biennial cycle that is per our Attachment K, and the WECC path rating process occurs when someone submits for a change. I don't see these studies would replace that process.
- **Comment:** Travis Allen – I wanted to add that is an important point you were making. That they are separate processes.
- **Comment:** Dave Smith – I think there might be efficiency opportunities as you coordinate with some projects going through that process.
  - **Answer:** John Leland – It's important that for those projects that are not within a planning regions transmission provider planning process or someone who submits pursuant to Order 1000 requirements, submit the project to the regions it electrically connects. Then it is important for the projects, in that case, to provide information to NTTG by submitting their project for consideration into the NTTG plan. These are two different and separately governed processes. One is tied to Order 1000 and the path rating is a WECC activity to resolve any problems relating to new transmission development.
  - The TWG will review each change case to determine if any modification should be developed or evaluated that would be more efficient or cost effective in meeting the needs.
  - The TWG will run some dynamic stabilities analysis. If the change case fails to meet dynamic stability requirements it will either be set aside as unacceptable or modified by the TWG by the addition of an Alternative Project or some other mitigation measure.
  - Once there are acceptable change cases, they will be evaluated using the three economic metrics, capital costs, energy losses and reserves. The monetized incremental costs will be summed and compared with the IRTP.

- If the examination of the incremental costs suggests that a different combination of projects may result in a change case being more efficient or cost effective then a new change case will be developed.
- The sets of the projects that result in the lowest incremental costs will be incorporated in the Draft Regional Transmission Plan.
- The cost allocation scenarios adopted by the Cost Allocation Committee, with consultation from the Planning Committee, will be evaluated using the Draft Regional Transmission Plan.
- All or a portion will be used by the TWG to do analysis to develop the Draft Final Regional Transmission Plan.

- Load and resource forecasts of the funding transmission providers:
  - Idaho Power – Jared Ellsworth
    - Load forecasts are provided by the load forecasting groups which looks at historical growth, economic indicators and any expected new large loads. Idaho Power submits the same load and resource forecast to both WECC and NTTG. Idaho Power has a 50th, 90th or 95th percentile peak expectation for each year which all assume the same growth projections but different peaks based on historical information. Only the 50th percentile is submitted for the load forecast. Any large loads that have not committed to joining Idaho Power or becoming a customer is not submitted.
    - With regards to resources, Idaho Power had a significant amount of solar that applied to connect and intending to connect on the Idaho Power system this year. The IRTP identified the potential retirement of the Valmy Power Plant which is jointly owned with NV Energy. This was not included in the submittal to NTTG due to the fact that it has not been negotiated with NV Energy and an end date has not been identified.
  - Portland General – Don Johnson
    - For their load forecast Portland General takes a 15-year average of the historical peak average of load events that have happened and do both modeling down to monthly based on a redirection analysis and peak demand and use the 15-year average of weather related issues. One of the reasons for Portland General's loads decreasing is that a large industrial customer curtailed their load and have not given any indication on when they will be coming back and so for the 10 years out Portland General assumed they were not coming back.
  - PacifiCorp – Jamie Austin
    - PacifiCorp's Energy Supply Management (ESM) department is the owner of the load forecasts but the transmission side submits load and resources to WECC and to NTTG. Transmission takes what is submitted by the ESM and aggregates it with the other network customer loads given to PacifiCorp under NDA. The aggregated load forecast (monthly peak and energy) covering PACs two BAs (PACE and PACW) are submitted to both WECC and NTTG.
    - Regarding MOD 31-2 Jamie Austin indicated that it is a NERC and WECC compliance, NTTG is not a registered NERC entity. At this time Mod 31-2 has not been enforced and will not be until the October. PacifiCorp ESM are

in the process of working with compliance on developing a formal answer and not until then would there be that kind of detailed information. If NTTG is requiring more details it would have to go through the PAC-ESM side to get that information.

- Bela Vastag inquired about PacifiCorp East's 540 and 887 transmission service obligations showing on Page 7 of the study plan and asked what they were for and the reason for having obligations 8 to 10 years out.
  - It was indicated that the 540 could be the nuclear plant at Antelope and that the transmission service obligations are firm transmission service requests that are possibly in the request phase or have a signed agreement. The RTP that NTTG is developing is looking at 2026 and the timelines for those transmission service obligations are within the timeline of the 10-year horizon.
  - Jamie Austin will revisit the obligations and provide a response in an email.

- NorthWestern – Chelsea Loomis
  - NorthWestern's process is similar to Idaho Powers in that they use a 1 & 2 forecast model as well as some aggression analysis with path flows and projecting the future.
  - Chelsea Loomis also indicated that the 1,774 load forecast for last cycle could have been a mistake and the reason for NorthWestern showing a load growth of 218 MW, however the 1,992 for 2026 is correct.

- Public Policy Requirements
  - Public Policy Requirements (PPR) is defined as those requirements that are established by local, state or federal laws or regulations and are enacted.
  - Local transmission needs driven by PPR are included in the NTTG IRTP through the roll up of the local transmission plans and will be included in the RTP. In quarter 1 stakeholders may submit regional transmission needs and associated facilities driven by PPR. The Planning Committee will determine if there is a more effective or cost effective solution to meet the regional transmission needs.
  - Henry Tilghman informed the participants that in 2015 Oregon passed a statue requiring regional planning processes to consider ocean energy and he did not see it on the table listed in the study plan.
    - Chelsea Loomis indicated the TWG will work with someone who represents the Oregon territory to make sure what is being included is correct.
    - Jamie Austin noted that PacifiCorp has some service territory in the coast as well and that their IRTP should address that.

- Base Case assumptions and project re-evaluation
  - The NTTG analysis will model the entire western interconnection. One of the reasons for working with WECC is to make sure NTTG's data and validation processes are consistent with theirs.

- NTTG will use the TEPPC data base case and resulting 2026 TEPPC PCM which is intended to be available by the end of Quarter 2. If it is not available, then NTTG will have to develop an alternative base case.

- Re-evaluation of projects
  - The Planning Committee will re-evaluate the original project in context of current planning cycle using an updated in-service date.
  - Committed projects are those projects that have the permits and rights of way required for construction. They are not subject to re-evaluation unless it does not meet their schedule milestones.
  - Non-committed projects will be re-evaluated and potentially replaced or deferred only in the event of:
    a. The needs of the regions will not be met due to the project's development schedule.
    b. Due to delays in governmental permitting agencies the projects development scheduled is delayed and the needs of the regions cannot be met.
    c. The needs of the region have changed and the non-committed project is no longer the more efficient or cost effective solution.
  - If either a, b or c are true the transmission provide may purpose solutions that is a "New Project" to cure the deficiencies.

- System conditions to study, Change Cases and reliability criteria
  - NTTG will use PCM to examine all hours of the year where resources and forecasted loads causes the highest stress on the NTTG footprint.
  - The Common Case Transmission Assumptions (CCTA) list includes 22 new transmission projects.
  - Using the TEPPC 2026 PCM the TWG will identify system conditions such as (defined in the study plan):
    a. peak coincident NTTG summer load condition;
    b. peak coincident NTTG winter load condition;
    c. conditions with high flows across Montana to the Northwest (Path 8), which would provide a bases for the proposed PPC study;
    d. conditions with high import to Idaho and export flows from Idaho across B2H;
    e. conditions with high flows across The Utah/Nevada to Southeast interfaces (TOT 2), which may be useful in studying ITPs focused on fulfilling future RPS requirements; and/or
    f. conditions where persistent congestion occurred that might warrant transmission system reinforcement.
  - With regards to "f" this will be the first time NTTG will use PCM to examine congestion. The others are looking at a specific hour that are then translated into power flow. NTTG has expanded on how it's looking at the system to see if there is persistent congestion that might be provided through PCM.

  - **Question:** Fred Heutte – The use of the CCTA is only really because it's folded in how TEPPC does the 2026 common case and it doesn't pre-suppose the projects in

the NTTG footprint they are not preapproved. In affect you want to study all of these projects within the 2016-2017 planning context. Correct?

- **Answer:** Chelsea Loomis – You are correct. For example, the Gateway project is included in the CCTA list and will be a part of the base case. When we run the PCM, it will be there as part of our IRTP. What we will do is might take that project out temporarily to see if we can still meet our regions transmission needs without that particular project.

- Analysis metrics and evaluation process
  - Power flow data bases
    - Base cases
      - The TWG will import the data from the 5 hours as a result of the PCM. Any load and resource data received in Quarter 5 the TWG will make a determination if the power flow data needed to be updated.
    - Change cases
      - The TWG has the ability to add any number of combination of projects and may remove any non-committed projects to create the change cases to evaluate a more efficient or cost effective solution of the RTP
  - Steady-state and contingency
    - Power flow steady-state N-0 and contingency N-1 and creditable N-2 will be performed using the process outlined in the WECC SRWG Data Preparation Manual.
    - The TWG will use the multiple contingencies from the Peak RC and also include any special protection schemes related to the contingencies to ensure the analysis is complete and correct.
    - A limited number of dynamic analysis will be performed. The TWG will use their expertise in deciding what studies to run.
      - Fred Heutte requested a clear explanation in the study plan on how the TWG expertise would be applied to both the contingencies and the dynamic studies.
  - System performance analysis
    - The TWG will be following the NERC Reliability Standards TPL-001-4. Links to this standard is included in the study plan. It was noted that NorthWestern and PacifiCorp has specific standards.
    - The DRTP will include any violations and mitigation measures on the Bulk Electric System (100 kV and above) series capacitor. Non BES bus violations will not be reported.
  - Methodology for comparison
    - Alternate projects
      - The study results of the change cases will be compared against the results of the IRTP. Chelsea Loomis walked through a table which outlined examples of how the change cases are compared to the IRTP.
      - The null case is the 2026 common case with no future proposed transmission in it (projects in the CCTA list) to see if the current

transmission system is sufficient to meet the needs of 2026 as a comparative analysis.

- There was discussion on the projects showing in the comparison and those listed in the 2016 Quarter 1 submissions. The table currently in the study plan is an example of how the projects will be grouped and compared against the IRTP. Through stakeholder comments, the TWG is looking for suggestions or recommendations on how the comparison is done prior to making their final decision.
- The TWG will perform the initial regional evaluation and create the IRTP. Once there is an understanding of the regional impacts of the transmission plan through the evaluation of the regional projects, the TWG will then move to the evaluation of the interregional projects to see if there is a more efficient or cost effective solution to meet the regional needs.

- **Question:** Dave Smith – It was mentioned that some of the interregional projects may be dependent on or help the Gateway projects. Are you going to assume the Gateway projects are 100% funded by PacifiCorp and then add on these other projects and evaluate that compared to a standalone TWE project?
  - **Answer:** John Leland – The table is describing a reliability analysis. For example, if we put in a particular interregional project and it has a designated resource not directly connected to their project, we would try it without and then try it with a regional project to see if it will allow a reliable delivery of that power into and exiting the system. In terms of cost, that would be a part of the metrics analysis. That kind of information would be considered in the capital costs. What we are looking at is trying to determine how these particular projects come together and make a more efficient or cost effective RTP for NTTG. We asked for source and sink of the interregional projects and would rely on coordinating with the other regions as far as the sinks go.
- **Question:** Bill Hosie – When you end up substituting a different project like TWE that has a different set of resources then the Gateway project is working with and has a different destination for the energy. Can you help me with that?
  - **Answer:** Chelsea Loomis - We had the different projects identify their sink and source. To the extent we can model that appropriately so we can get the flows on the paths that we need to properly assess their impact to the NTTG region.
- **Question:** Bill Hosie – Does that mean when you study the TWE project as an example, you would add an additional set of resources and an additional sync to the base case?
  - **Answer:** Ron Schellberg – There maybe two phases to the analysis of the interregional projects. The first phase is looking to see if there is any contribution to regional requirements that these projects might bring. The second analysis will be the interregional needs and how

are they being satisfied by these projects. In the second phase the resources to serve an RPS requirement in California would be added for example. One could start with adding the interregional projects and see if it satisfies any regional need.

- The change cases must meet all the system performance criteria defined. The TWG has the discretion to modify a change case with unsponsored projects if that is the only solution.
- The TWG will validate the projects submitted costs using the TEPPC calculator. If the costs vary more than 20% NTTG will work with the project sponsor to resolve the differences. If NTTG cannot resolve the differences, then the TWG will determine the appropriate costs to apply in the study process.
    - The annual related costs will be the sum of annual return, depreciation, taxes, operation and maintenance and income taxes.
- Power flow will be used to compare the losses before and after a project is added to the system. A reduction in losses after the project is added is shown as a benefit.
- The reserve metric is a capacity sharing opportunity between Balancing Areas. In order for there to be a benefit, there must be uncommitted transmission capacity available.
- NTTG will allocate the net benefits to the transmission provider using the three metrics (capital costs, energy losses and reserves).

- Impacts on neighboring regions
    - NTTG will monitor the BES in neighboring planning regions and identify the violations using the NERC criteria. If any violations are identified, NTTG will contact the neighboring regions to see if this is a new or preexisting problem that the affected planning region should mitigate.
    - If the violation cannot be eliminated that expense of the mitigation will be included in the cost of the DRTP.
    - Fred Heutte inquired if the other regions had a similar process.
        - John Leland indicated this is an Order 890 requirement.

- Interregional Transmission Project (ITP) coordination
    - NTTG received three ITP submittals this cycle.
    - The regions held their Annual Interregional Coordination Meeting in February and discussed coordination of Quarter 1 data submissions. Stakeholders also discussed conceptual solutions and potential proponents of ITPs.
    - For all the ITPs properly submitted into NTTG, any deficiencies were corrected by April 15th.
    - The Relevant Planning Regions (RPR) will coordinate the data, study assumptions and methodologies for evaluating the ITP.
    - For each ITP properly submitted, the RPR need to seek to resolve any differences and provide opportunity for stakeholders to participate in the activities.

- If NTTG determines that ITP does not meet the regional need, NTTG will then notify the other RPR and NTTG is no longer obligated to participate in the joint evaluation of the ITP.

- **Question:** Dave Smith – I was on a call with WestConnect today and there were representatives from the CAISO on the call and said there was discussion about the ITPs that were submitted to NTTG, whether the CAISO was a RPR. Wasn't sure what kind of issues there would be associated with that.
  - **Answer:** Sharon Helms – At one point we were unsure if the projects that had been submitted into the CAISO had met the CAISO submittal requirements. Gary has subsequently indicated that the CAISO has accepted the projects as properly submitted into their regional process. That is the first threshold, and the second threshold is to identify the RPRs. The term RPR is defined in Attachment K as those that are directly electrically connected. For example, SWIP-N or TransCanyon, CAISO would not be a RPR but CAISO would be for the TWE project.

- Public Policy Consideration (PPC) study request and Study Plan
  - Chelsea Loomis indicated there were two places in the study plan regarding the PPC study request. Section 9 is a summary of the request and Attachment 3 included the details of the actual request.
  - NW Energy Coalition and Renewable NW joint submitted a PPC study request for scenario analysis to NTTG. This is similar to the request in the last cycle but has a larger scope and will now be taking advantage of the TWGs ability to run dynamics analysis.
  - There were questions from the TWG on the language of the submittal that were discussed with Fred Heutte and Cameron Yourkowski. Language was agreed upon that clarified the study request. This includes:
    - Moving new generation out on Path 8
    - A synchronous condenser will be modeled as appropriate and the TWG will rerun the analysis only if the voltage violations inhibit flows on Path 8.
    - PCM will be ran for informational purposes only and the TWG will not re-run stability analysis after PCM.
  - The TWG will run the same base case with the heavy flows on Path 8. The TWG will run steady-state and dynamics analysis.
  - The TWG will look at the retirement of Colstrip 1, 2 & 3 and add 1,494 MW of wind at the Broadview bus at three different capacity factor levels, 35%, 100% and 0%.
  - If there are voltage violations that inhibit the moving of power on Path 8, the TWG will add the synchronous condenser and see if the power can be moved off Path 8 as well as see how that condenser adds to the reliability of the footprint. Dynamics studies will be ran, as appropriate, to confirm there are not stability issues on Path 8.
  - The 1,494 MW of wind will be reduced to 1,244 and 250 MW will be added as a natural gas plant in Billings. Steady-state analysis and some dynamics analysis will be ran, as appropriate.
  - The TWG will choose the best case with Planning Committee and stakeholder input, from a reliability perspective then run through PCM for a comparison of the results.

- If there needs to be a remedial action scheme the TWG will look at a limited number of solutions, either a 6 or 10 cycle trip of the wind to see if that will eliminate the reliability issue for a fault on the system. However, the TWG will not estimate the costs or identify the equipment, they will only identify if they need a 6 or 10 cycle trip.

- **Comment:** Fred Heutte – Thank you and the group for taking on this proposal. We've not only got refinements but improvements and I really appreciate that. This is definitely aimed at a reliability perspective and we are not trying to answer every possible answer about potential Colstrip unit retirement but focus on a bookend type of analysis of what would happen with retirement of a significant component of the Colstrip generation. As Cameron mentioned earlier we have secured funding for bringing in a technical assistance and expertise on our side and we hope we will be able to talk with you some more about how to coordinate on that going forward. We hope that it will help for both to understand the results and maybe by providing input into NTTG's analysis. Thanks for the work on this.

- Robustness testing
  - When developing NTTG's RTP there are particular assumptions in terms of the load and resources and placement of transmission, resources and generation. The robustness testing is to test for a potential future with a different mix of resources, load and transmission that is required to serve that need.
  - Last cycle the Planning Committee looked at the scenarios developed for cost allocation as they provided a different perspective for the generation patterns and types of loads. This helped define the robustness testing of the transmission system and was an additional use for the cost allocation scenarios.
- Cost Allocation Overview
  - As part of the Attachment K, the allocation scenarios applies to regional cost allocation. Each region has defined in their Attachment Ks the process they will follow. This applies to regional and interregional transmission projects, or those projects the Planning Committee has selected into the plan for cost allocation. John Leland indicated that there can be projects selected into the RTP but not for cost allocation.
  - The allocation scenarios will determine the benefits and Beneficiaries of the RTP.
    - John Leland indicated that depending on where NTTG is at in the planning cycle the term RTP can apply to the Draft Regional Transmission Plan (DRTP) or Draft Final Regional Transmission Plan (DFRTP).
  - NTTG's cost allocation process will only allocate costs if the benefits outweigh the costs of the project or scenario. NTTG will do a comparison of the plans costs which is the sum of the incremental values for capital costs, the monetized costs for losses and reserves for the NTTG regions. This is done on a plan to plan comparison and not a project to project comparison.
  - A project must be selected into the RTP for cost allocation.
  - In order for a project to be submitted for cost allocation, the project sponsor must be prequalified and provide additional information in order to do so. This is done by October 31st of the prior cycle. The data provided is intended for the project sponsor to have the wherewithal, financial support and the ability to manage and maintain the project should it be selected into the RTP.

- NTTG's RTP is not a construction plan and NTTG does not go out for bid or award projects the ability to build like the CAISO. NTTG's RTP is used as input only to the local transmission provider's plans which provides a suggestion of possible different projects from a regional perspective.

- **Question:** Dave Smith – Given what you've laid out, what are you trying to qualify for in the prequalification process?
  - **Answer:** John Leland - We want to make sure from the regional cost allocation basis, if you are qualified we go through the allocation process and the region provides the transmission providers or entity that is liable for costs of the project should it be developed. We at NTTG think that the cost allocation does not mean cost recovery but that has yet to be tested. There is a difference between the plan itself and cost allocation. What we are talking about here is cost allocation. We think it doesn't compel cost recovery. In order to go through the process, we needed to set up criteria in the Attachment K. Order 1000 obligated us to come up with a way to make sure we had project sponsor qualification criteria in place.
- **Question:** Dave Smith – When you give the entities with the tariffs information on potential projects you can also give them information about the status of the sponsor whether they are qualified or not?
  - **Answer:** John Leland – We would provide that and also provide them with information that, from a regional perspective, these are the projects selected into the plan and then from a regional or interregional perspective we would be able to provide the cost allocation that was determined from the regional process.

- NTTG has three classifications of projects, sponsored, unsponsored and merchant transmission developer.
  - Sponsored projects are those projects that have provided all the information and someone sponsoring it. These can be submitted as a merchant project which has its own funding mechanism.
  - Unsponsored projects are those that do not have a sponsor. This includes a stakeholder or proponent submitting a project in Quarter 1 or submittals from discussions of interregional project at the Annual Coordination meeting in February as well as an alternative project identified during the planning process.
- NTTG's process presumes that if a project sponsor submits a project for cost allocation the sponsor is intending and wanting to develop and build that project which is why there is a prequalification process. However, that doesn't mean NTTG will be awarding it or providing cost allocation unless it is selected in the regional plan.

- **Question:** Bill Hosie – If a developer proposes an alternative project and has gone through the qualification process and the study group fines it meets all the criteria for substituting one of the sponsored projects. I heard that you say the project isn't award to the person who proposed the project and doesn't get to go ahead with that

project. It would go into a local planning process and there is no certainty that the proponent would have rights to the project or the local people decide to go ahead?

- **Answer:** John Leland – If we have a regional project that NTTG has defined, and also a sponsored project that comes in, we do not have the ability to propose or cause the sponsored project to move forward, but we would look at it in the context of the regional transmission planning process and if the project that you suggest meets the criteria of a regional project we would put it in, along with the other regional project that may have been rolled up or already in the plan. If it had requested cost allocation and the sponsor met the pre-qualification requirements, then that information from a regional perspective would be applied. The presumption is that the sponsored project is replacing another project already in the plan which was rolled up from a local transmission provider. Because the regional plan is not a construction plan, the local transmission provider would then have a choice to go with its own project, as there can be other reasons for needing that project beyond a regional perspective, but they also have the other project that someone has sponsored and has regional cost allocation. The local transmission provider would have the option to take a look at both projects. It doesn't say that if a local provider moves forward with their own projects, the project that is in the regional plan wouldn't go forward as a merchant project or to move forward with FERC 1000 for cost allocation. NTTG cannot cause the transmission provider to accept the results of the regional plan in terms of how it modifies its plan. NTTG can provide that information to all the transmission providers but the project would then have to be accepted by the local transmission provider to be included in their plan. Going into the next cycle, the prior plan would have the accepted project in the plan with cost allocation and NTTG would go through the process of taking a look at that project. If the project that was selected in the regional plan and has all of its rights of way and permits to build, it would then be a committed project. Unless that committed project in terms of funding or permits or anything causes them to miss deadlines, then they would be re-evaluated, otherwise they would remain in the plan. There would be information available to the transmission providers as well as the regulators for the rate case for recovery. While it is not compelling there is information out there and a lot more potential there than maybe you were aware of.

- **Question:** Bill Hosie – If you do have a cost allocation assessment done, there is nothing binding about the cost allocation and we would have to go and negotiate with the people who want transmission service or the other transmission providers.
  - **Answer:** John Leland – That is what NTTG believes.

- The Cost Allocation Committee will provide with the cost allocation, an identification of the transmission rights or ownership like rights that were assumed to be available and utilized by the beneficiaries in order to get the benefits.

- **Question:** Fred Heutte – You mentioned cost recovery. I was wondering what discussions are occurring with that. My understanding in the Order 1000 context, is that the discussion is on cost allocation but not about cost recovery and FERC

discussed this in Order 1000 and Order 1000A or Order 1000B. My understanding of that is that the two are completely separate subjects and for a given transmission project might be subject to review by state utility commission or a governing body of a public utility or dealt with an independent developer and is really outside of the Order 1000 context.
    - **Answer:** John Leland – That is what we believe, but like I said has yet to be tested.
- **Question:** Dave Smith – If an interregional project doesn't ask for cost allocation consideration from NTTG, would that be considered as a merchant?
    - **Answer:** John Leland – We wouldn't go through the cost allocation process but we would need to know and understand the costs of the project. The interregional project has certain costs that need to be shared with the Relevant Planning Regions (RPR) and the RPR make that determination by the benefits that project brings to each of the regions, and the sum of those benefits. The percentage of the benefits compared to the total benefit would be applied to the cost of the project. If the sum of the benefits doesn't exceed or equal to the project costs, then the region has the ability to deal with that by for example the project sponsor picking up those costs. If that is not available, then the project itself would fail the cost benefit test.
- **Question:** Dave Smith – The TWE project did not ask for cost allocation from NTTG because we don't think it will give any benefits to NTTG and so it would be zero costs to the members of NTTG. But are you saying you would have to qualify for cost allocation to be an ITP?
    - **Answer:** John Leland – No. The only time you qualify is if you are asking for cost allocation. For us to identify what the proportional of the costs of the TWE project are, each of the RPR needs to identify the benefits TWE project would provide to the region and we then would apply that to the benefits to determine NTTG's cost. In the case of TWE, there is the capital costs, and maybe benefits associated by losses or reserve margin. We have to go through the calculation of all the benefits and the analysis. If we need to we can have additional conversations off line.

- For the projects submitted into the current cycle NTTG did not receive any requests for cost allocation and therefore will not go through CA calculation.
    - If an unsponsored Alternative Project is identified through the regional analysis that would cause a more efficient or cost effective RTP, that project would automatically be subject to cost allocation review.

- Cost Allocation Scenarios
    - The basis for the allocation change cases is to identify the change in the benefits and allocation to the Beneficiaries compared to the IRTP.
    - The allocation scenarios being proposed this cycle are consistent with the allocation scenarios developed in the last cycle. The allocation scenarios are trying to find how robust the draft for final RTP is with the future being different and how well it will function in that future.

- The first two allocation scenarios are looking at a high and low load assumptions. The proposal is adding and subtracting 1,000 MW of load proportional to where it is located in the NTTG footprint.
- The second allocation scenario is looking at the replacement of wind with solar. The suggestion is the wind capacity in the footprint will be reduced by 800 MW and an additional 800 MW of solar will be added changing the resource type and location but not changing the transmission plan topology.
- The last allocation scenario is replacing coal with wind and solar. Last cycle NTTG looked at the removal of 1,000 MW of coal from the NTTG footprint and replaced with an equivalent amount of energy in equal shares of wind and solar. This was not thought of any action to come out of 111-d.
    - During internal discussion at NTTG, an alternative scenario for the coal replacement was proposed where instead of identifying the amount of coal, NTTG would remove coal resources outlined in the Integrated Resource Plans and the units being retired would be those already identified in those plans.
- John Leland indicated the study plan points to an Attachment 4 for the details of the cost allocation scenarios. He explained the Cost Allocation Committee developed a document last cycle which described the process however it has not been updated with the Quarter 1 data submittals and that the committee wanted to wait for stakeholder comments and feedback prior to finalizing the report and attaching it to the study plan.
- The allocation scenarios will be analyzed using power flow analysis and will be an N-0 and N-1 to determine if there are any issues in the analysis for each scenario. Any issues identified will be mitigated. If after the study a future uncommitted transmission project is not needed, for that scenario only, the uncommitted transmission project and costs would be deferred beyond the planning horizon.
    - John Leland indicated the proposed N-1 and deferral of the uncommitted transmission project is new from the last planning cycle.
- The benefits and Beneficiaries for the allocation scenarios will be defined using the three metrics, capital cost, line losses and reserve margins. The Planning Committee will evaluate the DRTP and define the metrics associated with those as well as the Beneficiaries receiving benefits associated with the change cases for the allocation scenarios.
- The application of the methodology as outlined in the Attachment K was Appendix J of last cycles RTP. John Leland asked if it would be beneficial to include in the study plan as an attachment or as a hot link so those who were interested could see how NTTG implemented the cost allocation in the last cycle.
- Once the cost allocation analysis is completed, the information is provided by the Cost Allocation Committee and supplied into the RTP that is published.

- **Question:** Fred Heutte – I have a general question and wondering about the timing of what TEPPC is doing and what is happening in NTTG. We've learned though the discussions at TEPPC the common case is supposed to be done by the end of June but it may not be round trip ready. I am wondering if this is imposing any kind of schedule risk for the activities we are talking about here and if you have any ideas about what to do as a Plan B if there are anything along those lines.

  - **Answer:** Jamie Austin – The worst case scenario would be if TEPPC doesn't deliver on the by June 30th that would be what Byron described without the round trip. He did talk about hiring ABB to help with developing the database and also Ron Schellberg to help with solving the 1-hour export in the power flow. The combination of those resources added to support the TEPPC staff is almost a given we will have PCM that is round trip. Given they have the help they need in my opinion that is all it takes to hand over a workable data set that we can use to do the reliability analysis necessary including dynamic stability analysis
- **Question:** Sharon Helms – I had understood, that if WECC was to provide the 2026 common case by the end of June, and the round trip in the July/August timeframe that would still fit with in our studies and would still be acceptable.
  - **Answer:** Jamie Austin – That is accurate. I am a little more optimistic than that. What would be available on June 30th would be round trip capable. Because ABB, who developed that process is fully aware of the need.
- **Comment:** John Leland – If worst come to worst and suppose that doesn't happen. What we have talked about is that we have been through the round trip process for three cycles and it is not that we don't have the ability to get there, it is time consuming but we are going to have to keep an eye on whether this is proceeding in terms of the timeframe that has been provided and acceptable for the output of PCM and power flow. If we get to a point where we make a determination it won't happen. The alternative is that NTTG would most likely step up and go through the process like we have done in past cycles, we have a solved case that is associated with the 2025 power flow and we would have to get some information to update it but again that would be pushing the time frame for analysis.
- **Comment:** Jamie Austin – NTTG did not have access to the new 'building blocks' (e.g. new loads, hydro, wind, solar, EE, DER, etc.) late 2015 when the first cut that was given to TEPPC. The staff has promised to have that added by June 30th. We can take that and apply the right resource definition for the NTTG footprint. There are options should the worst case scenario occur.
- **Comment:** Fred Heutte – It is important to highlight that there is a possibility that things can slow down at WECC but if so NTTG is prepared to make the appropriate response.

Discussion: Wrap Up, Next Steps and Adjourn

- Sharon Helms reiterated the objective for the meeting as being an in depth walk through so stakeholders and others have an understanding of NTTG's approach and study assumptions, the load and resource assumptions, change cases and cost allocation.
- Improvements to the NTTG study plan from last cycle involve the inclusion of the cost allocation scenarios and the PPC study plan.
- A notice will be distributed by Friday, May 13th informing stakeholders of the open window for written comments to the NTTG study plan, the process and timeline. Sharon Helms encouraged those who had questions and/or made comments during this meeting to submit them in writing as well as any additional comments or questions regarding NTTG's study plan.
- Depending on the number of comments and discussion, the currently scheduled June 8th NTTG Planning Committee meeting may be extended to a Joint NTTG Planning and Cost Allocation Committee meeting, however that decision will be made at the end of May after the window for comments has closed.

NORTHERN TIER TRANSMISSION GROUP

3. Assignments:

Item #	Assignment	Owner	Target Date	Status
1.	Incorporate description and treatment of 'regionally significant projects' in the Draft Study Plan.	Ron Schellberg	May 27, 2016	
2.	Include an updated summary of the Available Transfer Updated and designated transmission paths in the Draft Study Plan.	Ron Schellberg	May 27, 2016	
3.	Include an explanation in the study plan on how the TWG expertise would be applied to both the contingencies and the dynamic studies.	TWG	May 27, 2016	
4.	Confirm the 3000 MW of the Power Company of Wyoming is properly accounted for	TWG	May 27, 2016	

Next Meeting: The next Northern Tier Planning Committee Meeting is tentatively scheduled for June 8th.

- Voice Conference Mtg.: **(626) 425-3121** Access Code: **432-608-245**

Attendees:

NTTG Planning Committee Member Representatives		
Membership Class 1		
Jared Ellsworth, Idaho Power	Don Johnson, Portland General	Nathan Powell, Deseret
Bill Hosie, TransCanada	Chelsea Loomis, Vice Chair, NorthWestern	

Membership Class 2		
Marshall Empey, UAMPS		

Membership Class 3		
Johanna Bell, ID PUC	Bob Decker, MT PSC	David Walker, WY PSC
John Chatburn, ID OER	Jerry Maio, UT PSC	

NTTG Cost Allocation Committee Member Representatives

NORTHERN TIER TRANSMISSION GROUP

Membership Class 1		
Jamie Austin, PacifiCorp	Marshall Empey, UAMPS	Courtney Waites, Idaho Power

Membership Class 2		
Johanna Bell, Idaho PUC	Marci Norby, WY PSC	Larry Nordell, MT CC
Bob Decker, MT PSC	Belinda Kolb, WY OFC CA	Bela Vastag, UT OF CS

Other NTTG Members & Guests		
Travis Allen, MATL	Fred Heutte, NW Energy Coalition	Henry Tilgham, Tilgham Assoc.
Philip Augustin, Portland General	John Leland, NTTG	Amy Wachsnicht, NTTG
Rich Bayless, NTTG	Kishore Patel, PacifiCorp	Steven Wallace, CPS
Bob Davis, UT Div. PU	Ron Schellberg, NTTG	Matt Wiggs, ID OER
Darrell Gerrard, TransCanyon LLC	Dave Smith, TransWest Express	Tom Wrenbeck, ITC
Sharon Helms, NTTG	Jamie Stamatson, MT CC	Cameron Yourkowski, Renewable NW